National Institute of Environmental Health Sciences

An open source web application for the surveillance and prevention of the impacts on public health of extreme meteorological events: The SUPREME system

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Abstract:

BACKGROUND: Every year, many deaths or health problems are directly linked to heat waves. Consequently, numerous jurisdictions around the world have developed intervention plans that are employed during extreme heat events; beyond their emergency sections, these plans generally include preventive measures to be implemented each year. Over the last five years, local and regional information systems have been implemented in a few Canadian cities for surveillance purposes. However, until recently, no such systems existed at the provincial level. In the context of the Government of Quebec's 2006-2012 Action Plan on Climate Change, a real-time integrated system for the surveillance and monitoring of extreme heat events has been implemented on a provincial level. The system is a component of a broader approach that would also monitor the public health impacts of all types of extreme meteorological events. RESULTS: After conducting a detailed needs analysis, the Quebec National Institute for Public Health developed and implemented an integrated web application leveraging open source software for the real-time Surveillance and Prevention of the impacts of Extreme Meteorological Events on public health, called the SUPREME system. Its first field use involved heat waves. This decision-support system is based on open source software and is composed of four modules: (1) data acquisition and integration, (2) risk analysis and alerts, (3), cartographic application, and (4) information dissemination - climate change and health portal. The system is available to health specialists through a secure web information portal and provides access to weather forecasts, historic and real-time indicators (including deaths and hospital admissions), alerts and various cartographic data used for conducting prevention activities and launching emergency measures. CONCLUSIONS: The SUPREME system was implemented and used during the summer of 2010. It served as an important decision-making tool during the July 2010 heat wave in the province of Quebec, Canada. Planned improvements for 2011 include the integration of data related to other risk factors for other extreme events to the system. The next steps will be to provide access to the application to other groups of specialists that are involved in the prevention, monitoring, or analysis of extreme meteorological events and their effects on community health and well-being.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3126690

Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Public

Early Warning System: ☑

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure : ☑

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Temperature

Temperature: Extreme Heat

Geographic Feature: ☑

resource focuses on specific type of geography

Urban

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Non-U.S. North America

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Injury

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Elderly, Low Socioeconomic Status

Resource Type:

format or standard characteristic of resource

Research Article, Research Article

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content